NEPHROLOGY
RESIDENT CURRICULUM

I. Introduction/Background

A rotation on renal medicine is encouraged during the second and/or third year of Internal Medicine residency, and is offered as an optional rotation for second or third year Family Practice residents. Diagnosis and management of fluid and electrolyte abnormalities, acid-base imbalances, acute and chronic renal failure, and the care of dialysis and transplant patients constitute common internal medicine problems, both in/out-patient. It is important for all residents to be facile in these subjects.

II. Plan of Rotation

The learning experience will include both in/out- patient aspects. It should ideally be 4 weeks long, but can range from 3 to 6 weeks. Because of the amount of material available to cover, two separate rotations, one in the second year of residency and one in the third, can be taken with minimal overlap and repetition. Teaching material will be drawn from the inpatient service consults, the outpatient hemodialysis unit, and outpatient clinic sessions arranged individually with the resident.

III. Goals/Objective of Rotation

1. To understand basic renal functional physiology.

2. To have a grasp of epidemiology, diagnosis, pathophysiology, and management of hypertension.

3. To comprehend basic fluid and electrolyte/acid-base balance and how to diagnose common disorders.

4. To understand how to correctly diagnose and manage acute inpatient renal failure, including when to request dialytic and hemofiltration intervention.

5. To understand how to manage hemodialysis patients with chronic renal failure.

6. Each inpatient consultation should cite at least one to two relevant references from the literature to demonstrate academic investigation by the resident in the preparation of the consult.

IV. Methods

1. Coordination will be accomplished by the Medicine Chief Resident and the department scheduling for a given time slot between Internal Medicine, Family Practice, and Medical Education.

2. The resident will see the following outpatients:

   a. One new outpatient Nephrology consult per week. This will be screened by the nephrologist and staffed by the nephrologist, but the patient would be entirely worked up by the resident. Follow-up care will be mutually determined by the patient, resident and nephrologist and will depend on what's appropriate for the patient.

   b. Selected follow-up outpatients if of academic interest.

3. During the week the day will begin at 0800 with medicine openers. Mornings will be for new consults and rounds by the resident, and medical students on inpatients. Afternoons will consist of

inpatient rounds didactics. The resident will not work on weekends or holidays. The resident is encouraged to attend renal grand rounds at U.C. Davis on Tuesday mornings.

4. A combination of didactic lectures, directed written case study problems, consultation case presentations, and preceptored outpatient clinic encounters will be employed to meet the objectives stated above. Topics will include:

1. Renal anatomy, physiology, and GFR physiology
2. Extracellular fluid volume regulation and edema
3. Water metabolism
4. Acid-base physiology
5. Potassium handling by the kidney
6. Calcium, magnesium, and phosphorous metabolism
7. Prostaglandins and the kidney
8. Laboratory assessment of renal function and urinalysis interpretation
9. Radiology of the kidney
10. Acute renal failure
11. Glomerular disease
12. Urinary tract infections, Pyelonephritis, Reflux nephropathy
13. Tubulointerstitial nephritis, Toxic nephropathies
14. Vascular diseases of the kidney
15. Pregnancy and the kidney
16. Diabetes and the kidney
17. Nephrolithiasis
18. Urinary tract obstruction
19. Diuretics
20. Renovasacular hypertension, Hypertension in renal disease
21. Chronic renal failure
22. Treatment of end-stage renal disease in the USA, an overview
23. Hemodialysis, Peritoneal dialysis
24. Renal transplantation
25. Ethical, social, and financial aspects of end-stage renal disease

V. Resources

1. A collection of journal review articles is maintained in the renal office and is open to resident use.

2. Any journals or texts that belong to the nephrologist are available to the resident.

3. Audiovisual reference sets on urinalysis are also kept in the renal office.

4. Up to date in Nephrology is available on MedWeb.

5. A microscope, centrifuge, and urine staining supplies are available in the urinalysis lab so the resident may obtain hands-on experience with clinical supervision by the nephrologist. The resident may get hands-on experience in placing vascular access for hemodialysis and arteriovenous hemofiltration.

VI. **Resident Evaluation**

1. At the end of each resident's rotation a comprehensive evaluation will be completed and filed with the Department of Medicine. The standard Department of Medicine resident evaluation form will be used. Any notable deficiencies in resident performance will be brought to the resident's attention by the mid-point in the rotation, if any all possible, to permit constructive self-criticism and correction.

2. **CRITERIA USED IN EVALUATING MEDICINE RESIDENTS ROTATING ON NEPHROLOGY**

a. Length of time allotted to the rotation.

b. Was there evident interest in the subject shown by the resident?

(1) Did the resident appear in a timely fashion to rounds?

(2) Were consults seen in a timely fashion? Did the resident read the references to common nephrology problems available in Library/Renal Office?

c. Outpatient Nephrology

(1) Did the resident see outpatient nephrology cases during the rotation?

a Were the patient presentations concise, complete, and directed?

b Were the pertinent parts of the history and physical examination elicited and presented?

c Was a plan of diagnosis/management attempted?

d Was the encounter managed in a professional and compassionate manner?

d. Inpatient Nephrology

(1) Were administrative aspects of managing the consult service (keeping an up-to-date patient roster, accounting for patient contact-visits, setting priorities for rounding based on acuity) managed carefully?

(2) Did the resident present inpatient consults in a timely fashion with respect to acuity and need for intervention by nephrology?

a Were presentations clear, concise, understandable?

b Were important elements of history and physical exam elicited?

c Were the consults written in an understandable way, with acceptable penmanship and grammar?

d Did the Impression and Recommendations sections intelligibly communicate to the person requesting the consultation the main points discussed with the resident in a way permitting rational action by the reader?

e Were consults appropriately referenced for issues of diagnosis and management?

f Were patient contact managed in a humanistically appropriate way?

(3) Did the resident avail him/herself of opportunities to do diagnostic procedures such as Urinalyses, Hansel's Stains?

a Were diagnostic radiograms independently examined by the resident and presented to the nephrology staff?

(4) Did the resident perform any vascular access placement procedures under Nephrology staff supervision?

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